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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

PTOL-90A (Rev. 04/07)

	Application No.	Applicant(s)
Office Action Summary	10/620,329	BROWN ET AL.
	Examiner	Art Unit	
	Tung Vo	2621	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>03</u> MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
  Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) ☒ Responsive to communication(s) filed on <u>05/23/2007</u>.

2a) ☒ This action is **FINAL.** 2b) ☐ This action is non-final.

3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) ☒ Claim(s) <u>45-63</u> is/are pending in the application.

    4a) Of the above claim(s) <u>1-44</u> is/are withdrawn from consideration.

5) ☐ Claim(s) _____ is/are allowed.

6) ☒ Claim(s) <u>45-55 and 58-63</u> is/are rejected.

7) ☒ Claim(s) <u>56 and 57</u> is/are objected to.

8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9) ☐ The specification is objected to by the Examiner.

10) ☒ The drawing(s) filed on <u>05 April 2007</u> is/are: a)☒ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All b)☐ Some * c)☐ None of:

      1.☐ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____.

      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
    Paper No(s)/Mail Date _____.

4) ☐ Interview Summary (PTO-413) .
    Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Election/Restrictions

1. Applicant's election without traverse of Species III, claims 45-63 in the reply filed on 05/23/2007 is acknowledged.

2. Claims 30-44 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected claims, there being no allowable generic or linking claim. Election was made **without** traverse in the reply filed on 05/23/2007.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

4. Claims 45-55, and 58-63 are rejected under 35 U.S.C. 102(e) as being anticipated by Vetro et al. (US 7,170,932).

Re claim 45, Vetro discloses an apparatus (fig. 17) adapted to transcode an incoming bitstream coded in a first hybrid video codec (1703 of fig. 17) to an outgoing bitstream coded in a second hybrid video codec (1704 of fig. 17), the apparatus comprising:

a variable length decoder (1703 of fig. 17) having:

an input (1701 of fig. 17) adapted to receive the incoming video bitstream;

a first output (1750 of fig. 17) providing image information associated with a first macroblock; and

a second output (1765 of fig. 17) providing a plurality of first motion vectors associated with the first macroblock;

a conversion unit (1750 of fig. 17) coupled to the variable length decoder, the conversion unit comprising:

a processing unit (1750 of fig. 17, Note the conversion unit comprises down-sampling function as filters; fig. 15 A, col. 13, lines 1-45) adapted to provide image information associated with a second macroblock as a function (down-sampling method, col. 13, lines 1-2 and 24-35) of the image information associated with the first macroblock independent of the plurality of first motion vectors associated with the first macroblock;

a motion vector conversion unit (1765 of fig. 17) adapted to convert the plurality of first motion vectors into a plurality of second motion vectors associated with the second macroblock (1770 of fig. 17); and

a variable length encoder (1704 of fig. 17) coupled to the conversion unit, the variable length encoder having:

a first input (1750 and 1782 of fig. 17) adapted to receive the image information associated with the second macroblock; and

a second input (1765 and 1770 of fig. 17) adapted to receive the plurality of second motion vectors;

an output (1702 of fig. 17) providing the outgoing bitstream.

Re claim 46, Vetro further discloses wherein the plurality of second motion vectors are the same as the plurality of first motion vectors (1765 of fig. 17, Note Intra-macroblocks using the same motion vectors of transcoding).

Re claim 47, Verto further discloses wherein the first hybrid video codec and the second hybrid video codec support different numbers of motion vectors per macroblock (Motion vectors are different for Inter or Intra blocks are performed by motion compensation, 1770 of fig. 17) and a number of motion vectors supported by the second hybrid video codec is allowed by the second hybrid video codec (1770 of fig. 17).

Re claim 48, Vetro further discloses wherein converting the plurality of first motion vectors into the plurality of second motion vectors comprises: replicateing the plurality of first motion vectors to produce the plurality of second motion vectors if the second hybrid video codec supports more motion vectors per macroblock than a number of motion vectors per macroblock supported by the first hybrid video codec (Mapping motion vectors, 1765 of fig. 17); and combining the plurality of first motion vectors to produce the plurality of second motion vectors if the second hybrid video codec supports fewer motion vectors per macroblock than the number of motion vectors per macroblock supported by the first hybrid video codec vectors (fig. 13).

Re claim 49, Vetro further discloses the plurality of first motion vectors comprise a plurality of incoming motion the plurality of second motion vectors comprise a second motion vector (1770 of fig. 17); and combining the plurality of first motion vectors comprises taking a mean or a median of the plurality of incoming motion vectors to compute the second motion vector (average motion vector is calculated by motion compensation; 1770 of fig. 17).

Re claim 50, Vetro further discloses a resolution of motion vectors allowed by the second

hybrid video codec is less than a resolution of motion vectors allowed by the first hybrid video

codec (1750 of fig. 17, Note down sampling, less resolution); and converting the plurality of first

motion vectors into the plurality of second motion vectors comprises rounding each of the

plurality of first motion vectors to a nearest valid motion vector allowed by the second hybrid

video codec (1765 of fig. 17, mapping MV to fit the down sampled as MV converting).

Re claim 51, Vetro further discloses wherein a range for motion vectors for the first

hybrid video codec lies outside a range for motion vectors allowed by the second hybrid video

codec (1765 of fig. 17), wherein converting the plurality of first motion vectors into a plurality of

second motion vectors associated with the second macroblock (mappling MV for second

macroblock) comprises modifying the plurality of first motion vectors to lie in the range for

motion vectors allowed by the second hybrid video codec (MC, 1770 of fig. 17).

Re claim 52, Vetro further discloses wherein modifying the plurality of first motion

vectors comprises clamping each component of the plurality of first motion vectors to a closest

motion vector component value allowed by the second hybrid video codec (1770 of fig. 17,

Motion compensation is selecting the best MV as clamping MV).

Re claim 53, Vetro further discloses wherein the plurality of first motion vectors

comprise a first motion vector (VLD, 1710 of fig. 17, for parsing a MV of the first motion

vectors) and the plurality of second motion vectors comprise a second motion vector (Note the

output of MV mapping, 1765 of fig. 17) and modifying the plurality of first motion vectors

comprises setting the second motion vector to be a largest motion vector allowed by the second

hybrid video codec with a same direction as the first motion vector (modifying the motion

vectors to have largest motion vector for the second codec by MC, 1770 of fig. 17).

Re claim 54, Vetro further discloses wherein the plurality of first motion vectors

comprise a first motion vector and the plurality of second motion vectors comprise a second

motion vector and modifying the plurality of first motion vectors comprises, for a component of

the first motion vector and a corresponding component of the second motion vector, setting each

component of the first motion vector that is a value not allowed by the second hybrid video

codec to a value allowed by the second hybrid codec and assigning it to the second motion vector

(fig. 12).

Re claim 55, Vetro further discloses wherein the plurality of first motion vectors

comprise a first motion vector and the plurality of second motion vectors comprise a second

motion vector and modifying the plurality of first motion vectors comprises, for a component of

the first motion vector and a corresponding component of the second motion vector: setting the

component of the second motion vector to be −16, if the component of the first motion vector is

less than -16; setting the component of the second motion vector to be 15.5 if the component of

the first motion vector is greater than or equal to 16; and setting the component of the second

motion vector to be equal to the component of the first motion vector if the component of the

first motion vector is neither less than -16 or greater than or equal to 16 (col. 3, line 63-col. 4,

line 35).

Re claim 58, Vetro further discloses wherein the plurality of second motion vectors are associated with a most recent decoded frame and the first hybrid video codec supports P frames that do not reference the most recent decoded frame (1740 fig. 17; Note the motion compensation of decoder determines the most recent decoded frame for P frames). and the second hybrid video codec supports P frames that reference the most recent decoded frame, the apparatus further adapted to process the plurality of first motion vectors (1770 fig. 17), wherein the conversion unit is further adapted to scale the plurality of second motion vectors to reference the most recent decoded frame (1750 fig. 17).

Re claim 59, Vetro further discloses wherein scaling the plurality of second motion vectors comprises dividing each component of the plurality of first motion vectors by the number of skipped reference frames plus one to produce the plurality of second motion vectors (Mapping motion vectors, 1766 of fig. 17).

Re claim 60, Vetro further discloses wherein the conversion unit is adapted to convert a P frame encoded in part by the first image information to an I frame encoded in part by the second image information to correct for drift (col. 17, lines 64-65, fig. 17).

Re claim 61, Vetro further discloses wherein the conversion unit is further adapted to convert a P frame encoded in part by the first image information to an I frame encoded in part by the second image information to remain in conformance with a standard associated with the second hybrid video codec (1750 of fig. 17).

Re claim 62, Vetro further discloses wherein the standard is ITU-T Recommendation H.263 and the I frame is encoded if no I frame has been encountered associated with the first image information for a pre-determined number of frames (MPEG standard, col. 6, lines 45-55).

Re claim 63, Vetro further discloses wherein the pre-determined number frames is 131(MPEG standard inherently has 131 frames).

Allowable Subject Matter

1.   Claims 56 and 57 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter: The prior art of records does not particularly disclose the image information associated with the first macroblock encodes a first portion of a first frame comprising a first frame size; the image information associated with the second macroblock encodes a second portion of a second frame comprising a second frame size; the first frame size is not supported by the second hybrid video codec, and converting the plurality of first motion vectors into a plurality of second motion vectors comprises: determining the second frame size to be a smallest frame size allowed by the second hybrid video codec that is larger than the first frame size; centering the second frame on the first frame; and for areas of the second frame that lie outside a boundary defined by the first frame size, coding a suitable background color if the first frame is an I frame and coding as not coded macroblocks if the first frame is a P frame as specified in claim 56; and the image information associated with the first macroblock encodes a first portion of a first frame comprising a first frame size; the image information associated with the second macroblock encodes a second portion of a second frame comprising a second frame size; the first frame size is not supported by the second hybrid video codec, and converting the plurality of first motion

vectors into a plurality of second motion vectors comprises: determining the second frame size to

be a largest frame size allowed by the second hybrid video codec that is smaller than the first

frame size; centering the second frame on the first frame; and cropping the first frame to produce

the second frame, ignoring any macroblocks in first the frame that lie outside the boundary

defined by the second frame size as specified in claim 57.

Conclusion

2.   Applicant's amendment necessitated the new ground(s) of rejection presented in this

Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a).

Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE

MONTHS from the mailing date of this action. In the event a first reply is filed within TWO

MONTHS of the mailing date of this final action and the advisory action is not mailed until after

the end of the THREE-MONTH shortened statutory period, then the shortened statutory period

will expire on the date the advisory action is mailed, and any extension fee pursuant to 37

CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event,

however, will the statutory period for reply expire later than SIX MONTHS from the date of this

final action.

Contact Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tung Vo whose telephone number is 571-272-7340. The examiner can normally be reached on Monday-Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mehrdad Dastouri can be reached on 571-272-7418. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.
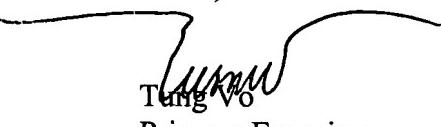
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